

Sequence Listing

<110> Seoul National University Industry Foundation

<120> A Novel STAY-GREEN Gene and Method for Preparing Stay-green Transgenic Plants

<130> PP-B0091

<150> KR10-2004-0012026

<151> 2004-02-23

<160> 58

<170> KopatentIn 1.71

<210> 1

<211> 825

<212> DNA

<213> Oryza sativa

<400> 1

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cgctgccgct acgtcgtgcc gagggcgagg ctgttcgggc cggcgatctt cgaggcgctc	180
aagctgaagg tgctgttcct gggggtggac gaggagaagc accagcaccg ggggaagctg	240
cgcgcggacgt acacgctgac gcacagcgac gtgacggcga ggctgacgct gccgggtgtc	300
cacaccatca accgggcgca gctgcagggg tggtaacaac agctgcagcg ggacgaggtg	360
gtggcgaggc ggaagaaggt gcagggccac atgtcgtgac acgtccactg ccacatctcc	420
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ctccccgtgg ttctgaaggc gttcgtccac ggcgacggca acctgttcag ccggcaccgc	540
gagctggagg aggccacggt gtgggtctac ttccactcca acctcccacg cttcaaccgc	600

Sequence Listing

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gtcgagtgtc  ggggcccgt  ccgcgacgcc  ggagcgccgc  ccgaggaaga  cgacgccgtc  660
gccgccgcgg  cggccgagga  ggccggcgcg  gaggagatgc  ccgcggccgg  cgagtggccg  720
cggcggtgcc  cggggcagtg  cgactgtgtc  ttcccgccat  acagcctcat  cccctggccg  780
caccagcacg  acgtcgccgc  cgccgacggc  cagccgcagc  agtga  825

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<210>      2
<211>      846
<212>      DNA
<213>      Hordeum vulgare

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<400>      2
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aggcgacacg  tcgtgcgag  ggcgcggtc  tttgggtccg  ccattcttca  ggcgccaag  180
ctcaaggtgc  tgttcgtggg  ggtggacgag  gagaagcacc  cggggaagct  gccccggacc  240
tacacgtca  cccacagcga  cgtgacggcg  cggctgacgc  tggcctgtc  gcacaccatc  300
cacgccgcgc  agctgcaggg  ctgggtacaac  cgcctgcagc  gggacgaggt  ggaggccgag  360
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tggggcccgc  tcagcgacgc  cgccgcgcca  tacgatgacg  aagccgccgt  cgactcccca  660
gccgccgacg  cagccatggc  ggccacggcg  gtgaacacgg  ccgcggacga  gcaggcgacg  720
cgcgggggcc  agtggccggc  gcggagcccc  gggcagagcg  actgctgctt  cccgcgggag  780

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Sequence Listing

tgcctcatcc cctggccgca cgagcacgag atggccgccg acgccggcca ggcgcgcgcg 840
 cagtga 846

 <210> 3
 <211> 798
 <212> DNA
 <213> Triticum aestivum

 <400> 3
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 cagcggcgca cgcggctcgc cggcgcgggc cccgggaagg tgctcgtgct cggccgcgcg 120
 aggcgacacg tcgtgcgag ggcgcggctg ttggcccg ccattcttga ggcgtccaag 180
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 tacacgctca cccacagcga cgtgacggcg cggctgacgc tggcgggtgc gcacaccatc 300
 cagcgcgcgc agctgcaggg ctggtacaac cgcctgcagc gggacgaggt ggtggccgaa 360
 tggaagaagg tgcagggcgc catgtcgtg caggtccact gccacatctc cggcggccac 420
 ttctgtctcg acctcatcgc gccgcttcgc tactacatct tccgcaagga gctccccgtg 480
 gttctgaagg cgttcgtgca cggcgacggc agcctgttca gccagcaccg ggagctggag 540
 gaggccacgg tgtgggtcta ttccactcc aacaccccaa acttcaaccg cgttcagtgc 600
 tggggcccg cgcggaagcc gcgggcccta gacaacaaga cgcgcgcgcg gccgtgcccg 660
 caaggcgacg ccggggacaa aaaggcaatg gatcgggcag cgcgcggggg gtcccggggc 720
 atggaatggt tttcccgccc gaatcctatc cctggcccaa gaattcaaat gccccaccc 780
 cgccaggccc cccaataa 798

Sequence Listing

<210> 4
 <211> 795
 <212> DNA
 <213> *Triticum aestivum*

<400> 4
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 aggcgccacg tcgtgcccg ggcgcggctg tttggtcggg ccatcttcga ggcgccaag 180
 ctcaagggtgc tgttcgtggg ggtggatgag gagaagcacc cgggcaagct gccgcggacc 240
 tacacgtca cccacagcga cgtgacggcg cggctgacgc tggcgggtgc gcacaccatc 300
 cacgccgcgc agctgcaggg ctggtacaac cgctgcagc gggacgaggt ggtggccgag 360
 tgggaagaagg tgcagggcgc catgtcgtg cacgtccact gccacatctc cggcggccac 420
 ttctctgctc acctcatcgc gccgtccgc tactacatct tcgcaagga gctccccgtg 480
 gttctgaagg cgttcgtgca cggcgacggc agcctgttca gccagcacc gccagctggag 540
 gaggccacgg tgtgggtcta ctttcactcc aacaacccca acttcaaccg cgtcgagtgc 600
 tggggccgcgc tcgcgatgcc gcgcgcccta gacgacgaga cggcacgga ctcccaccgg 660
 cgacgcaccg tgccactgca cgaagacagc cgtcgcgcg gcagtgcgcc gggggcccg 720
 gcattggatg gtgttcgcga aaatgctatc cctggcgcg acccaattgc cgccaaccgc 780
 caggggcccc aataa 795

<210> 5
 <211> 846
 <212> DNA
 <213> *Zea mays*

Sequence Listing

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<400>      5
atggccgcgcg ccgcttctac catgtccctg ctcccgatct cccagcccag gaagcagcag      60

cagcaaggcg cgggcgccgt ggtcgtgttc cagcggcggc cctgggacgc gcggcggagg      120

cgatacgtcg tcccgacggc gaggtgttcc gggccggcga tcttcgaggc gtccaagctg      180

aagggtgtgt tcctgggcgt ggacgagggg agcagcaagc atctgcatgc gcaccaccgc      240

gcgcgcggcg cgctgtgtcc gcggacgtac acgctgacgc acagcgacgt gacggccagc      300

ctgacgctcg ccgtctccca caccatcaac cggcgcgcgc tgcagggctg gtacaaccgc      360

ctgcagcgcg acgaggtggt ggcgagtggt aagaaggtgc gcggccggat gtcgctgcac      420

gtgcactgcc acatctccgg cggacacttg ctctgggacc tcatcgccgg cctccgctac      480

tacatcttcc gcaaggagct ccccgtagtg ctcgaggcgt tcgtgcacgg cgacggcgac      540

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ctggcccgtc tcaaccgcgt cgagtgtggt ggtccgctcc gcgacgccgc cgcgcccgcg      660

cccgcgagg acgactccac cgcgcgggcc gccgcttcca tcgccatgga gggccagatg      720

cccgtgggcg agtggccgca cgggtgtccc cagcagtgcg actgctgctt cccgcgcgac      780

agcctcatac cctggccgaa cgagcaagac atggccgcgc cgcgcggcca ggtccgacag      840

cagtag                                             846

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<210>      6
<211>      825
<212>      DNA
<213>      Zea mays

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<400>      6
atggccgcgcg ccaccgccgc cgcttccacc atgtcgctgc tcccgatctc ccagctcagg      60

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Sequence Listing

cagcagcacg gcgcggggcg catgaggcgg cggccctggg tcgcgcggcg gaggcgatac	120
gtcgttcga cggcgaggct gttcggggcg gcgatcttcg aggcgtcgaa gctgaaggctg	180
ctgttcctgg gcgtggacga cgaggcgggc agcaagcagc acggggccgct gccgcggacg	240
tacacgctga cgcacagcga cgtgacggcc aggctgacgc tcgccgtctc gcacaccatc	300
aaccgcgcgc agctgcaggc ctggtacaac cgcttcgacg gcgacgaggc ggtggccgag	360
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gaggccacgg tgtgggtcta cttccactcc aacctggctc gcttcaaccg cgtggagtgc	600
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gcctccaact ccaaggaggc cggccagatg atggccatgt gcgagtggcc gcaccggtgt	720
ccccagcagt gcggctgctg cttcccgccg cacagcctca tcccctggcc gaacgagcac	780
gacatggcgc ccgcagatgc ctccggctcc gcccaacagc agtag	825

<210> 7
 <211> 801
 <212> DNA
 <213> Sorghum bicolor

<400> 7 atggcgcgag ccaactgcgc cgccgcttct accatgtccc tgccccgat ctcccagctc	60
aggcagcagc agcacggcgc gggcggcgtg gtcgtgttcc ggcggcgggc ccgggacgcg	120
cggcggaggc gatacgtcgt gccgacggcg aggctgttcg ggcggcgat cttcgaggcg	180

Sequence Listing

tccaagctga aggtgctgtt cctgggctg gacgaggaga gcaacaacaa gcacggggcac	240
ccgacgacgc cgtcgccgac ttccccgccg ctgccgctae tgccgcggac gtacacgctg	300
acgcacagcg acgtgacggc cagcctgacg ctggcctgtt cccacacccat caaccgcgcg	360
cagctgcaag ggtggtacaa ccgcctgcag cgggacgagg tggtaggcga gtggaagaag	420
gtgcgcgggc ggatgtcgct gcacgtgctc aaggctttcg tgcacggcga cggcgacctg	480
ttcagccggc acccgagct ggaggatgcc ccggtgtggg tctacttcca ctccaacctg	540
accgccttca accgcgtcga gtgctggggc ccgctgcgcg acgcgcgcgc gccgcggcc	600
gaggacgact ccaccgcgc gccgcgcgc tccaacaagg atgggcagat gccgcccgtg	660
ggcgagtggc cgtaccggtg tccccagcag tgcgactgct gcttccgcc gcacagcctc	720
atcccctggc cgaacgagcg cgacatggcg gccgcgcgc ccgatgcctc ctccgcgcgc	780
ggccaggccc aacagcagta g	801

<210> 8
 <211> 786
 <212> DNA
 <213> Glycine max

<400> 8 atgtgtactc tcacaactgt tcctgtgctc ccttctaagc ttaacaagcc ttcgctttct	60
ccgcaccaca attctctttt tccctactgt ggaagacggg tcgggaagaa gaacaaagca	120
atggttcttg ttgcaagggt gttcgggcca gccatatttg aagcctcaaa actgaagggt	180
ttgttcttag gagtggacga aaataagcac ccaggaaatc toccaaggac ttatacgcta	240
acccatagtg atataaccgc taagctcacc ttggcaatct ctcaaaccat aaataattct	300
cagctgcagg ggtggtacaa cagatttcaa agggacgaag tggtaggcaca gtggaaaaag	360

Sequence Listing

gtgaagggaa ggatgtctct gcacgttcac tgccacatta gtggaggcca ttttctcttg	420
gatatattag caaggttaag atacttcac ttctgcaagg agctaccagt ggtgttgaag	480
gccgtcgttc acggcgatga aaacctattc aacagctacc cagaattgca agatgccttg	540
gtttgggtct actttcactc aaacattcca gaattcaaca aggtggaatg ttggggccca	600
ctgaaggaag cgtcagcacc cacagggtgg gtccaggagg aggggttggc aattccacag	660
ccatgccaaag aagaatgcc atgttgcttt ccaccgctta cgttgagccc tattcagtgg	720
tctaaacaag ttcccagccg ccattacgaa ccttgtgatg ggattgggac ccaacaaaat	780
ctataa	786

<210> 9
 <211> 816
 <212> DNA
 <213> Glycine max

<400> 9 atgggtactc taacaactgt tcctgtgctc ccttctaagc ttaacaagcc ttcgctttct	60
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atgggtcctg ttgctaggtt gttcggggcca gccatatttg aagcctcaaa gcttaagggt	180
ttattcttag gagtggacga aaataaacac ccaggaaatc tccaaggac ttatactcta	240
acccatagtg atataaccgc taagctcacc ttggcaatct ctcaaaccat aaataattct	300
cagttacagg ggtggtacaa cagattgcaa agggacgaag tgggtggcaca gtggaagaag	360
gtgaagggaa agatgtctct gcacgtacac tgccacatca gtgggtgtca ttttctctta	420
gatatattag caaggttacg atacttcac ttctgcaagg agctaccagt ggtgttgaag	480

Sequence Listing

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gcggtggttc acggcgacga aaacctattc aacaactacc cagaattgca agatgccttg      540
gtttgggttt actttcactc aaacattcca gaattcaaca aggtggaatg ttggggccca      600
ctgaaggaag cgtcagcacc aataggtggg gccaaaggaag agagtgaagc agaaactctt      660
ctaagtaagg agggcttggc aattccacag ccatgccaaag aggaatgcca atgttgcttt      720
ccaccgctga cgtaagccc aattcagtgg tctcaacaag ttcccagcca ccattacgaa      780
ccttgtgatg ggattgagac ccaacaaagt ctataa                                816

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<210>      10
<211>     825
<212>      DNA
<213>    Vitis vinifera

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<400>      10
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gccgcaaggc tgtttggtcc tgcaattttc gaagcttcaa agcttaaggt tctgtttttg      180
ggagtggatg agaagaagca ccaggggaag cttcctagaa cttacacgct tacgcatagt      240
gacataacat ctaaactcac tctggctata tctcaaacta taaacaactc tcagttgcag      300
gggtggtcca acagattaca aagagatgag gtggtggcac aatggaagaa agtgaaagac      360
cagatgtctc tgcattgtgc ctgccacata agtggaggcc atttccttct agatttgtgc      420
gctaaactta gatacttcat cttctgcaaa gagcttccag tggttttgaa ggcttttggt      480
catggagatg gcaacctgct caacaattac ccagaattac aggaagcttt ggtttggtt      540
tactttcact cgaacctccc agaattcaat agagtagaat gctggggggc gctcaataat      600
gcagcggcgc ctctctctcc tgccgccggt ggtggcgggt gtagggtgga ggcacaccag      660

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Sequence Listing

gacatgaggc aggtggaacc atcaagcaaa tgggagaggc cggaagagcc atgcatggag	720
aactgtacat gttgcttccc accaatgagc ctcattcccat ggtcacaaga tctcgcccat	780
gaaaatattc atgataccca aaagggatta cagcagcaaa cctga	825
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Sequence Listing

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tga 843

<210> 12
 <211> 873
 <212> DNA
 <213> Pinus taeda

<400> 12

atggcggtgg caagaatctc tgcaggaaaa acacagcact gctactcctt ctccccatct 60

gatgtacgga tttcgtctgc accacagaat tcacagtctc agttcaaaag gaaatcgaag 120

ataaagcttt cctccaggtt tctggccagc gagagcagct ggaatggcct ggtcgcgcac 180

cagttacagt gcaataacag acatcgaact aatagcagct tccccgac caccagtcgt 240

gtggtggcga gattgtttgg gcctgcaatc ttccaggcat cgaagctcaa ggttctatct 300

cttggaacac atgaagagaa acatcctgcg catcttccca ggacttatac gctcacacac 360

agcgacatca cggccaaatt aacgctggct ttttctcaaa caatcaataa agatcagggg 420

tggtataaca ggttacagag agacgaagtt cttgcgcagt ggaagaaatc tcagggcaaa 480

atgtctctgc acgttcaactg tcacatcagc ggaggtcact ggctcctgga cgccattgct 540

agacttagat ttacatctt ccgcaaggaa ctgccgggtg tgctggaggc gttcagacat 600

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tttcattcca atgtcaaaga attcaaacgt gtggaatgtt gggggtcttt ggctgaagca 720

tgcaagggtg cacctagcaa ttgaacaag gaattggacg agctcgatgg tggaaaattg 780

gagatgccta gtcattgcgc agaaccatgt agttgttgct ttccctccct tagtggtctt 840

ctacgaccag aagatgttga acaatttagc taa 873

Sequence Listing

<210> 13
 <211> 816
 <212> DNA
 <213> Citrus sinensis

<400> 13
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 cagcaaaacg cactctttgt ttctagaaga agatccaaga aaaagaacca atcttttgct 120
 cctgtggcaa gattattcgg accagccatt tttgaagctt caaagctgaa ggtattgttt 180
 ttgggggtgg atgaagagaa gcatccaggg aagctgccaa ggacttatac acttaccat 240
 agtgatataa cctctaagct tacttttagct atttctcaaa ccataaataa ttctcagctg 300
 cagggatggg acaacaggtt gcaaagggat gaggttggtg cagagtggaa gaaggtaaag 360
 ggaaagatgt ctcttcattg tcaactgtcac ataagtggag gccatttctt attagacatt 420
 tgtgctagac ttagattctt catcttctcc aaggaaactc ccgtgggtct gaaggcattt 480
 gttcatggag atggcaattt gttaaacaat caccgcgaat tacaggagggc tttgggttgg 540
 gtctattttc attccaatat tcctgaattc aataaagtcg aatgctgggg tccactcaaa 600
 gaggcagttg ccggatcgag tgaagctggc gggaccogcc acgagattag gcaagaaact 660
 tcaataagca actgggaatt accagaacct tgccaggaaa cgtgcaactg ttgctttcct 720
 ccaatgagct tgatcccggtg gtcagagaag cttccccttc aaaccgaaaa tcgtgggacc 780
 caggccaag aaagcttaca gcaacaaacc cgatga 816

<210> 14
 <211> 792
 <212> DNA

Sequence Listing

<213> *Medicago truncatula*

<400> 14

atgggtactc taaccacgc tcctcctcct atgctcactt ctaagttcaa accttctttt	60
tcacctcaac ataaacctct ttttccaaat agaagacggt tatggaagaa gaaccaatca	120
attgttcttg ttgctaggtt atttggaccg gctatatattg aagcatcaaa attgaagggt	180
ttgttcttag gaattgatga agacaaacat ccaggaaatc ttccaaggac ttatacgtta	240
acacatagtg atgtaacctc aaaactcact ttggcaattt ctcaaaccat taataactct	300
cagttgcagg gatggtataa tagattgcaa agggatgaag ttgtggcgca gtggaagaag	360
gtgaagggaag agatgtctct ccatgttcat tgtcatatta gtggtggcca ttttttggtta	420
gatatatattg ctagactaag atatttcac tcttgcaaag agttaccggt ggtattgaag	480
gcttttgtag acggtgacgg caattttattc aacaactatc cggaattaca ggaagcattg	540
gtttgggtat attttcatct aaagattcca gaattcaaca aggtagaatg ttgggggtcca	600
ctaaaggagg cttcacaacc tactagtggg acccaaagg accaccaaaa tttagacctt	660
cctgagccat gtcaagaaac ttgcgagtgc tgctttccac cgttgaagtt gagcccaatg	720
ccgtgctcta atgaggttca caatgatact tatgaacctt ttgatggaat tgaaactcaa	780
caatcactgt aa	792

<210> 15

<211> 819

<212> DNA

<213> *Solanum tuberosum*

<400> 15

atgggaactt tgactgcttc tctagtgggt ccatctaagc tcaacaatga aaaacagagc	60
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Sequence Listing

tctatTTTTg tacacaaaac tagaagaaaa tccaagaaga atcaatccat agtacctgtg	120
gcaagggttat ttgggccagc tatatttgaa gcttcaaagt tgaagggtact ttttttggga	180
gttgatgagg aaaagcatcc aggaaagttg ccaagaacat atacactgac tcatagtgtat	240
attacttcta aacttacttt ggctatctct caaaccatca ataactctca gttgcaaggt	300
tggtataata gacttcaaag agatgaagtt gttgcagaat ggaagaaagt taaaggaag	360
atgtcacttc atgtccattg ccacataagt ggaggccatt ttatgttaga cttatttgct	420
agactcagaa actatatctt ctgcaaagaa ctccctgtgg ttctgaaggc tttgttcat	480
ggagatgaga atttattaaa gaataatcca gagttacaag aagctttagt ttgggtatat	540
tttcattcaa acattcaaga attcaacaaa gtagaatgtt ggggtccact caaagatgca	600
acctccccct catctctctc tagtggggta ggtggggta agagtacaag ttttacaagc	660
aatagtaaca acaagtggga gttacaaaaa ccttgtgaag aggcttgtgc atgttgcttt	720
cccccaatga gtgttatgcc ttggccttct tcaaactctg atgggatagg tgaggaaaat	780
gggaccatcc aacaaggctt gcaagagcag caaagttga	819

<210> 16
 <211> 810
 <212> DNA
 <213> Populus tremula

<400> 16 atgggctctc tggcaattgc tccctttctt ccttcaaagc taagaccctc tatacttgat	60
caaaatagct ctctctttcc ttcaaagaaa aaactcaaga ggaagaacca atctatcagt	120
cctgtggcaa gggtatttgg gccatctatt tttgaggcat caaaactgaa ggtgttggtt	180
ttaggggttg atgagaagaa acatccaggg aatctgocaa ggacttatac actaacacat	240

Sequence Listing

agtgatatta cagctaaact tacttttagcc atctcacaaa ccatcaacaa ttctcagttg	300
cagggatggg ccaacaaatt gtacagagat gaagtggggg cagagtggaa gaaagtaaag	360
ggaaagatgt ctctccatgt tcaotgccat ataagtggag gccattttct cctagattta	420
tgttgtagac ttagatattt catcttccgc aaagaacttc ctgtggtatt gaaggccttc	480
tttcatggag atgggaattt gtttagcagc tatcctgaat tgcaggaggc tttagtttgg	540
gtttactttc attccaacat tccagaattc aacaaggtag agtgctgggg tccactcaag	600
catgcgcgag caccttatac tgctgcatct ggcgggggcc ctgagaacaa ggagcaagca	660
accgactgga acttgctga gccatgccaa gagaactgtc agtggtgctt tccaccaatg	720
agcttgatcc catggtccga aatggttccc caagagaaca agaataatcc aagcaccag	780
cagacctttc aacaagctca acaaccctaa	810

<210> 17
 <211> 813
 <212> DNA
 <213> Populus tremula

<400> 17 atgggttctt tggcagttgc tccctttctt ccctcaaagc caagaccctc tctctttgat	60
caacacagct ccctcttttc tccaagtaca aagctcaaga ggaagaacca atctatcagc	120
cctgtggcaa gggtatttgg gccatctatt tttgaggcat caaagctgaa ggtgctgttc	180
ttaggggttg atgagaagga gcatccaggg aatctgcaa ggacttatac tctaacacac	240
agtgatatga cagctaagct tacttttagcc atctcacaga ccataaacia ttctcagttg	300
cagggatggg ccaacaaatt gtaccgagat gaagtggggg cagagtggaa gaaagtaaag	360

Sequence Listing

```

ggaaagatgt ctcttcatgt tcattgccat ataagtggag gccatthttct tttagattgg      420
tgctgcagac tcagatattt catcttccgc agagaactcc ctgtggtatt gaaggccttt      480
tttcatggcg atgggagctt gttgagcaac tatcctgaat tacaggaggg tttagtttgg      540
gtttactttc attcaaacat tccggaattc agcaaggctc agtgctgggg tccactcaag      600
gatgctgctg cgccttctac ttctgaaact ggtgggtcca atgagaccga ggagctagca      660
aaccaatcaa gcaactggga cttgcccgag ccatgccaaag aggagaattg tagctgttgc      720
tttccaccaa tgagcttgat cccatggtct aaaatggttc cgttggagga caaaaataat      780
ccaagcacc cacagaacct tcaacagccc taa                                     813

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<210>      18
<211>      861
<212>      DNA
<213>      Mesembryanthemum crystallinum

```

```

<400>      18
atgggcactt tgactgcctc tatgttgctc ccatcaaagc tcaaaccttc agtctttgaa      60
gatcaatcct ctgtttattt taaaagatca tgcagaggac ttccaagct caacaaggcc      120
aaatcttttt cacctgtgat gagattgttt gggccagcaa tatttgaagc atcaaagttg      180
aagggtttgt tcttgggagt ggataaagag aagcaccag ggaagttgoc tagaacttat      240
actcttactc atagtgatat cacttccaag ctactttgg ccatctctca aactattaac      300
aattcccagt tacaagggtg gtacaaccaa ctacagagag atgaagtggg ggagaaatgg      360
aagaaagtga aagggaagat gtcactccat gttcattgtc acataagtgg tggccatata      420
ctcttagact tatttgctaa gcttagattc tacatctttt gcaaggaaact ccctgtggta      480
ttgaaggcat ttgtgcatgg ggatgagaat ttgttcaaca actaccaga actacaagag      540

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Sequence Listing

```

gcaatggtgt gggatactt ccattcaaac cttgaagaat tcaacaaaat cgagtgtctg      600
ggcccgctca aggatgccgt ggcacgcaac tcgaagaaaa acaagaacaa gaacaagata      660
gatttcaagt taagtttcaa agaagaggat gattcaccag ataacgagtt ggagatacca      720
gagacttgca aggaaccctg tacctgttgc tttcctccca ctagtgtcat ccttgggtct      780
cattcagcat tgtcacaggg tgatgatctt catctctctg gtgggacca ccaaggcttg      840
gagcagcagc agcaaacttg a                                              861

```

```

<210>      19
<211>      807
<212>      DNA
<213>      Arabidopsis thaliana

```

```

<400>      19
atgtgtagtt tgtcggcgat tatgttggtta ccaacgaagc tgaaaccagc ttattcagac      60
aaacggagta acagtagcag cagcagctca ctcttcttca acaatagaag atccaagaag      120
aagaaccaat cgattgttcc cgttgcaagg ttgtttggac cggcgatttt cgaatcatcc      180
aaattgaaag tactcttctt aggggttgat gagaagaagc atccttcaac gctccctagg      240
acttacacac tcactcacag tgacattaca gctaaactaa ccttagctat ttctcaatcc      300
ataaacaact ctcaagtgca aggatgggca aataggetat accgggatga agttgtggca      360
gaatggaaga aagtgaagg gaaaatgtcg cttcacgttc attgtcacat aagcgggtggc      420
catttccttt tagatctctt tgcaaagttt cgatatttca tcttttgcaa agaactacct      480
gtgggtgtga aggcttttgt gcatggagat gggaaactgt tgaacaacta tcttgagcta      540
caagaagctc ttgtttgggt ctatttccat tctaattgtc atgagttcaa caaagtcgag      600

```

Sequence Listing

tggtggggtc cgctttggga agctgtttcg cctgatggtc acaagactga gactcttccc	660
gaggctcggg gtgcggacga gtgtagttgt tgttttccaa ccgtagctc gattccatgg	720
tctcatagtc ttagtaatga aggtgtaaat ggttactctg ggactcagac tgagggaatt	780
gctactccaa atccggagaa actctag	807

<210> 20
 <211> 816
 <212> DNA
 <213> Arabidopsis thaliana

<400> 20 atgtgtagtt tggctacaaa totgttacta ccatcgaaga tgaaaccagt ttttccagag	60
aaactgagca ctagctcact ctgtgtcacc actagaagat ctaagatgaa gaaccgatct	120
attgttcctg ttgcaagatt gtttggaaccg gcgatttttg aagcctccaa attgaaagtg	180
ttattcttag gagttgatga gaagaagcat ccagcaaaac ttccaagaac ttacactctt	240
actcacagtg acataaccgc taaattaact ttagctatat ctcaatccat taataactct	300
cagttgcaag gatgggcaaa taaattgttc cgggacgaag tagtgggcga gtggaagaaa	360
gtgaaaggta aaatgtcgct tcatgttcat tgccacatta gcggaggcca cttcttcttg	420
aatctcatcg cgaagcttcg gtactacatc ttttgcaaag aattacctgt ggtactggaa	480
gcttttgccc atggagatga gtatttgtaa aataatcacc ccgagctaca agaatctcct	540
gtttgggttt atttccattc caacatcccg gagtacaaca aggtcgaatg ttggggaccg	600
ctttgggagg ccatgtcgca gcaccagcac gacggaagga ccacaagaa gagtgaaact	660
ctaccggagc taccttgtcc tgatgagtgc aagtgttgct ttccgacggg tagcacgatt	720
ccgtgggtctc atcgtcatta tcaacatacc gcagcggatg agaatgttgc ggatggcctg	780

Sequence Listing

ttggaaatac ctaaccctgg gaaatcaaag ggatag 816

<210> 21
 <211> 662
 <212> DNA
 <213> Lycopersicon esculentum

<400> 21
 atgggaactt tgactacttc tctagtgggt ccatctaagc tcaacaatga acaacagagc 60
 tctattttta tacacaaaac tagaaggaaa tgcaagaaga atcaatccat agtacctgtg 120
 gcaagggttat ttggaccagc tatatttgaa gcttcaaaat tgaagggtact ttttttggga 180
 gttgatgaag aaaagcatcc aggaaagttg ccaagaacat atacactgac tcatagtgat 240
 attacttcta aacttacttt ggctatctcc caaaccatca ataattotca gttgcaaggt 300
 tgggtataaca gacttcaaag agatgaagtt gttgcagagt ggaagaaagt aaaaggggaag 360
 atgtcacttc atgtccattg ccacattagt ggaggccatt ttatgttaga cttatttgct 420
 agactcagaa actacatctt ctgcaaagaa ctccctgtgg ttctcaaggc ttttggtcat 480
 ggagatgaga atttactaag gaattatcca gagttacaag aagctttagt ttgggtatat 540
 tttcattcaa acattcaaga attcaacaaa gtagaatgtt ggggtccact cagagatgca 600
 acttccccct catcttcttc tgggtgggta ggtggggtga agagtacaag ttttacaagc 660
 ca 662

<210> 22
 <211> 334
 <212> DNA
 <213> Beta vulgaris

Sequence Listing

<400> 22
cccgaatta caagaagctt cagtatgggt atacttccat tcaagcattc ctgaatttaa 60

caaagtagag tgctggggcc cattgaccga cgccgtggat ccgccgtcga aaaataagaa 120

gaggatgatg atgataaatg atgagcagga taaagaagaa gaagaagaag caagtagctc 180

aaaatgggag atgttagttc ctgacacgaa accatgtaga tgttgctttc cacctacaag 240

tttgattcct tggactcctt cactatcaca agaacagcaa caagagcaac aatttcctgg 300

agacgtttcg atcccggcac ctgggactcg ctag 334

<210> 23
<211> 564
<212> DNA
<213> Zoysia japonica

<400> 23
acgtacacgc ttactcacag cgacgtcacg gccaaagctca cgctggcggt ctcccacacc 60

atccacgccg cgcagctgca ggggtggtac aaccgcctgc agcgggacga ggtggtggcc 120

gagtggagga aggtgcgcgg gaacatgtcg ctgcacgtcc actgccacat ctccggcgga 180

cacttcctcc ggcacctcat cgcgcgcgtc cgctactaca tcttccgcaa ggagctcccc 240

gtggtttctca aggcgttcgt gcacggcgac ggcagcctgt tcagcagcca cccggagtgt 300

gaggaggcca cgggtgtgggt ctacttccac tccaacctgc cccgcttcaa ccgcgtcgag 360

tgctggggtc ctctctgcga cgcgcgcgcg ccgctcgagg aggaggggca gcagaatgac 420

gatcggttgc ccgcgggcga gtggccgcgg cggtgcccc agcagtgcga gtgctgcttc 480

ccgcgcgaca gtctcatccc ctggcccaac gagcacgaca tggctccac cgacgcccc 540

gccgctggcc agacgcagca gtga 564

Sequence Listing

<210> 24
 <211> 284
 <212> DNA
 <213> Lotus corniculatus var. japonicus

<400> 24
 actaccaga attgcaggat gcattggtt gggatatactt tcaactcaaag attccagagt 60
 tcaacaagggt acagtgttgg ggaccactga aggaggcggc tgcaccgtca ggtgggtccc 120
 cggagaaaga aggtgaaggg gtgaagatgc cggatccgtg tccagaagaa tgtgagtgtt 180
 gctttcctcc tccaccggca ttggatccaa tcccatggtc tgaagaagtt ccctctcccc 240
 attatgaagc ttttgatggg gttgggaccc gaccaaactt gtag 284

<210> 25
 <211> 326
 <212> DNA
 <213> Lotus corniculatus var. japonicus

<400> 25
 tagatctatg tgctaagcta agatacttca tcttctgcaa agagcttcca gtggtattga 60
 aggccttcat tcacggcgat gaaaatttgt tcaacaacta cccggagttg gaggaatcat 120
 tggtttgggt ttactttcac tcaaacatct cagaattcaa caaggtggag tgttggggtc 180
 cacttaagga tgcttgtgca acatcaattg ggtcctactc ctatgacaag ggtatgcctc 240
 aaactcagcc atgccaacaa aactgcgagt gttgctttac accgatgagc tcaagtgatt 300
 ggattggaac ccaacaaaaa ttgtga 326

<210> 26
 <211> 415
 <212> DNA

Sequence Listing

<213> *Saccharum officinarum*

<400> 26

cacgagggctc gacctcatcg ccggcctccg ctactacatc ttccgcaagg agctccccgt	60
ggtagctcaag gcgttcgtgc acggcgacgg cgacctgttc agccggcacc cggagctgga	120
ggatgccacg gtgtgggtct acttcactc caacctgacc cgcttcaacc gcgtcgagtg	180
ctgggggtccg ctccgcgacg ccgccgcgcc gccggccgag gaagactcca ccgcgccggc	240
cgctccaac tccaaggagg ggcagatgcc gcccgtaggc gaggggcgt accgggtgcc	300
ccagcagtgc gactgctgct tcccgcccca cagcctcatc ccctggccga acgagcacga	360
catggetgcc gccgccgccg atgccaccgc cgctggccag gcccaacagc agtag	415

<210> 27

<211> 481

<212> DNA

<213> *Picea*

<400> 27

aatcaataaa gatcagttgc agggatggta taacaggta cagagagacg aagtgattgc	60
ccagtggaag aaatctcagg gcaaaatgtc tctgcacgtt cactgtcata tcagcggagg	120
tcattggctt ctggaccca tcgcgagact tagattttac atcttccgca aggaactgcc	180
ggtagtgctg gaggcgttca ggcattgaga tcgggctctg cttgacaagc acccagagct	240
agagaccgct ctggtttggg tgtatttcca ctccaatgtc agagagttca aacgcgtgga	300
gtgttggggt tctttggctg aggcattgaa ggggtgccct agcaatttg agaaggaatt	360
ggacgaggag tttaattgtg aaaaattgga gatgcctagt cattgctcag aacctgcaa	420
ttgttgcttt cctccattta gcgtccttct acgaccagaa gatgctgaac aatttattta	480

Sequence Listing

a 481

<210> 28
 <211> 632
 <212> DNA
 <213> Brassica napus

<400> 28
 atgtgtagtt tggcaacaaa tctcttactc ccatcgacga tgaaaccagc ttttacagag 60
 aaacagaaca ctaactcact ctttcttaca aataaaagat ccttgatgca gaacagatct 120
 actgttcctg ttctgtgtgc aagattgtta gaaccggcga tttttgaagc ctccaaattg 180
 aaagtatcgt tcttaggagt tgatgagaag aagcatccat caaagctccc aagaacttac 240
 actcttactc acagtgcacat aacagctaag ttaactttag ctatctccca atctatcaat 300
 aattctcagt tgcagggatg ggctaataga ttatttcggg acgaagtagt ggccgagtgg 360
 aagaaagtga agggtaaaat gtcccttcac gttcattgcc acattagcgg aggcacttc 420
 cttttggatc tcatagcgaa gcttcggtac tacatat ttt gcaaggaatt accggtggta 480
 ttgaaagctt ttgttcatgg ggatgggaac ttgttgaata gttaccctga gctacaagaa 540
 tctctgtttt gggtttatc cattcaaaca tccccgagta caataagggt gaatgttggg 600
 ggccgctttg ggaggccacg cagcacaaac ac 632

<210> 29
 <211> 291
 <212> DNA
 <213> Brassica napus

<400> 29
 atgtgtagtt tgtcagcgaa catgttgtta ccgacaaagc tgaaaccagc ttattcagac 60

Sequence Listing

```

aaacggggta atagtacgaa ctcaattctt gtctccaata caagatccaa gaggaagaac      120
caatccgttg ttccataggg aagattgttt ggaccggcga ttttcgaatc atccaagttg      180
aaagtattgt ttctaggtgt tgatgacaag aagcatccac caacgcttcc aaggacttac      240
actctcactc acagtgcacat tacagctaag ctaactttag ctatttctca c                291

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<210>      30
<211>      274
<212>      PRT
<213>      Oryza sativa

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<400>      30
Met Ala Ala Ala Thr Ser Thr Met Ser Leu Leu Pro Pro Ile Thr Gln
  1              5              10              15

Gln Gln Arg Trp His Ala Ala Asp Ser Leu Val Val Leu Ala Ser Arg
      20              25              30

Cys His Asn Ser Arg Arg Arg Arg Cys Arg Tyr Val Val Pro Arg
      35              40              45

Ala Arg Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val
      50              55              60

Leu Phe Leu Gly Val Asp Glu Glu Lys His Gln His Pro Gly Lys Leu
      65              70              75              80

Pro Arg Thr Tyr Thr Leu Thr His Ser Asp Val Thr Ala Arg Leu Thr
      85              90              95

Leu Ala Val Ser His Thr Ile Asn Arg Ala Gln Leu Gln Gly Trp Tyr
      100             105             110

Asn Lys Leu Gln Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Gln
      115             120             125

Gly His Met Ser Leu His Val His Cys His Ile Ser Gly Gly His Val

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Sequence Listing

130 135 140
 Leu Leu Asp Leu Ile Ala Gly Leu Arg Tyr Tyr Ile Phe Arg Lys Glu
 145 150 155 160
 Leu Pro Val Val Leu Lys Ala Phe Val His Gly Asp Gly Asn Leu Phe
 165 170 175
 Ser Arg His Pro Glu Leu Glu Glu Ala Thr Val Trp Val Tyr Phe His
 180 185 190
 Ser Asn Leu Pro Arg Phe Asn Arg Val Glu Cys Trp Gly Pro Leu Arg
 195 200 205
 Asp Ala Gly Ala Pro Pro Glu Glu Asp Asp Ala Val Ala Ala Ala Ala
 210 215 220
 Ala Glu Glu Ala Ala Ala Glu Gln Met Pro Ala Ala Gly Glu Trp Pro
 225 230 235 240
 Arg Arg Cys Pro Gly Gln Cys Asp Cys Cys Phe Pro Pro Tyr Ser Leu
 245 250 255
 Ile Pro Trp Pro His Gln His Asp Val Ala Ala Ala Asp Gly Gln Pro
 260 265 270
 Gln Gln

<210> 31
 <211> 281
 <212> PRT
 <213> Hordeum vulgare

<400> 31
 Met Ala Ile Ala Ala Ala Gly Ala Ser Thr Met Ser Leu Leu Pro
 1 5 10 15
 Ile Ser His Leu Lys Gln Leu Gln Leu Gln Arg Arg Ala Arg Pro Gly

Sequence Listing

20	25	30
Arg Val Leu Val Leu Gly Arg Arg Arg Arg His Val Val Pro Arg Ala		
35	40	45
Arg Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu		
50	55	60
Phe Val Gly Val Asp Glu Glu Lys His Pro Gly Lys Leu Pro Arg Thr		
65	70	75
Tyr Thr Leu Thr His Ser Asp Val Thr Ala Arg Leu Thr Leu Ala Val		
85	90	95
Ser His Thr Ile His Ala Ala Gln Leu Gln Gly Trp Tyr Asn Arg Leu		
100	105	110
Gln Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Gln Gly Ala Met		
115	120	125
Ser Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp		
130	135	140
Leu Ile Ala Pro Leu Arg Tyr Tyr Ile Phe Arg Lys Glu Leu Ser Val		
145	150	155
Val Leu Lys Ala Phe Val His Gly Asp Gly Ser Leu Phe Ser Gln His		
165	170	175
Pro Glu Leu Glu Glu Ala Thr Val Trp Val Tyr Phe His Ser Asn Asn		
180	185	190
Pro Asn Phe Asn Arg Val Glu Cys Trp Gly Pro Leu Ser Asp Ala Ala		
195	200	205
Ala Pro Tyr Asp Asp Glu Ala Ala Val Asp Ser Pro Ala Ala Asp Ala		
210	215	220
Ala Met Ala Ala Thr Ala Val Asn Thr Ala Ala Asp Glu Gln Ala Thr		
225	230	235
		240

Sequence Listing

Arg Ala Gly Gln Trp Pro Arg Arg Cys Pro Gly Gln Cys Asp Cys Cys
 245 250 255

Phe Pro Pro Glu Cys Leu Ile Pro Trp Pro His Glu His Glu Met Ala
 260 265 270

Ala Asp Ala Gly Gln Ala Pro Pro Gln
 275 280

<210> 32
 <211> 266
 <212> PRT
 <213> Triticum aestivum

<400> 32
 Met Ala Thr Ala Ser Thr Met Ser Leu Leu Pro Ile Ser His Leu Lys
 1 5 10 15

Gln Met Gln Gln Gln Arg Arg Thr Arg Leu Ala Gly Ala Leu Pro Gly
 20 25 30

Lys Val Leu Val Leu Gly Arg Arg Arg Arg His Val Val Pro Arg Ala
 35 40 45

Arg Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu
 50 55 60

Phe Val Gly Val Asp Glu Glu Lys His Pro Gly Lys Leu Pro Arg Thr
 65 70 75 80

Tyr Thr Leu Thr His Ser Asp Val Thr Ala Arg Leu Thr Leu Ala Val
 85 90 95

Ser His Thr Ile His Ala Ala Gln Leu Gln Gly Trp Tyr Asn Arg Leu
 100 105 110

Gln Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Gln Gly Ala Met
 115 120 125

Sequence Listing

```

Ser Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp
 130                      135                      140

Leu Ile Ala Pro Leu Arg Tyr Tyr Ile Phe Arg Lys Glu Leu Pro Val
145                      150                      155                      160

Val Leu Lys Ala Phe Val His Gly Asp Gly Ser Leu Phe Ser Gln His
                      165                      170                      175

Pro Glu Leu Glu Glu Ala Thr Val Trp Val Tyr Phe His Ser Asn Asn
                      180                      185                      190

Pro Asn Phe Asn Arg Val Glu Cys Trp Gly Pro Leu Arg Glu Ala Ala
                      195                      200                      205

Ala Pro Tyr Asp Asn Lys Thr Pro Thr Arg Pro Cys Pro Gln Gly Asp
                      210                      215                      220

Ala Gly Asp Lys Lys Ala Met Asp Arg Ala Ala Pro Arg Gly Ser Arg
225                      230                      235                      240

Gly Met Glu Cys Phe Ser Arg Pro Asn Pro Ile Pro Gly Pro Arg Ile
                      245                      250                      255

Gln Met Pro Pro Pro Arg Gln Ala Pro Gln
                      260                      265

<210>      33
<211>      264
<212>      PRT
<213>      Triticum aestivum

<400>      33
Met Ala Thr Ala Ser Thr Met Ser Leu Leu Pro Ile Ser His Leu Lys
  1                      5                      10                      15

Gln Met Gln Gln Gln Arg Arg Thr Arg Leu Ala Gly Ala Leu Pro Gly
                      20                      25                      30

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Sequence Listing

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Lys Val Leu Val Leu Gly Arg Arg Arg Arg His Val Val Pro Arg Ala
    35                      40                      45

Arg Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu
    50                      55                      60

Phe Val Gly Val Asp Glu Glu Lys His Pro Gly Lys Leu Pro Arg Thr
    65                      70                      75                      80

Tyr Thr Leu Thr His Ser Asp Val Thr Ala Arg Leu Thr Leu Ala Val
    85                      90                      95

Ser His Thr Ile His Ala Ala Gln Leu Gln Gly Trp Tyr Asn Arg Leu
    100                     105                     110

Gln Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Gln Gly Ala Met
    115                     120                     125

Ser Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp
    130                     135                     140

Leu Ile Ala Pro Leu Arg Tyr Tyr Ile Phe Arg Lys Glu Leu Pro Val
    145                     150                     155                     160

Val Leu Lys Ala Phe Val His Gly Asp Gly Ser Leu Phe Ser Gln His
    165                     170                     175

Pro Glu Leu Glu Glu Ala Thr Val Trp Val Tyr Phe His Ser Asn Asn
    180                     185                     190

Pro Asn Phe Asn Arg Val Glu Cys Trp Gly Pro Leu Ala Met Pro Arg
    195                     200                     205

Ala Leu Asp Asp Glu Thr Pro Arg Asp Ser His Arg Arg Arg Thr Val
    210                     215                     220

Pro Leu His Asp Asp Ser Arg Arg Ala Gly Ser Ala Pro Gly Ala Pro
    225                     230                     235                     240

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Sequence Listing

Ala Leu Asp Gly Val Pro Gln Asn Ala Ile Pro Gly Ala Asp Pro Ile
 245 250 255

Ala Ala Asn Arg Gln Gly Pro Gln
 260

<210> 34
 <211> 281
 <212> PRT
 <213> Zea mays

<400> 34
 Met Ala Ala Ala Ala Ser Thr Met Ser Leu Leu Pro Ile Ser Gln Pro
 1 5 10 15

Arg Lys Gln Gln Gln Gln Gly Ala Gly Ala Val Val Val Phe Gln Arg
 20 25 30

Arg Pro Trp Asp Ala Arg Arg Arg Arg Tyr Val Val Pro Thr Ala Arg
 35 40 45

Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe
 50 55 60

Leu Gly Val Asp Glu Gly Ser Ser Lys His Leu His Ala His His Pro
 65 70 75 80

Ala Pro Ala Pro Leu Leu Pro Arg Thr Tyr Thr Leu Thr His Ser Asp
 85 90 95

Val Thr Ala Ser Leu Thr Leu Ala Val Ser His Thr Ile Asn Arg Ala
 100 105 110

Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp Glu Val Val Ala
 115 120 125

Glu Trp Lys Lys Val Arg Gly Arg Met Ser Leu His Val His Cys His
 130 135 140

Sequence Listing

Ile Ser Gly Gly His Leu Leu Leu Asp Leu Ile Ala Gly Leu Arg Tyr
 145 150 155 160

Tyr Ile Phe Arg Lys Glu Leu Pro Val Val Leu Glu Ala Phe Val His
 165 170 175

Gly Asp Gly Asp Leu Phe Ser Arg His Pro Glu Leu Glu Glu Ala Thr
 180 185 190

Val Trp Val Tyr Phe His Ser Asn Leu Ala Arg Phe Asn Arg Val Glu
 195 200 205

Cys Trp Gly Pro Leu Arg Asp Ala Ala Ala Pro Ala Pro Ala Glu Asp
 210 215 220

Asp Ser Thr Ala Pro Ala Ala Ala Ser Ile Ala Met Glu Gly Gln Met
 225 230 235 240

Pro Val Gly Glu Trp Pro His Arg Cys Pro Gln Gln Cys Asp Cys Cys
 245 250 255

Phe Pro Pro His Ser Leu Ile Pro Trp Pro Asn Glu Gln Asp Met Ala
 260 265 270

Ala Ala Ala Gly Gln Val Arg Gln Gln
 275 280

<210> 35
 <211> 274
 <212> PRT
 <213> Zea mays

<400> 35
 Met Ala Ala Ala Thr Ala Ala Ala Ser Thr Met Ser Leu Leu Pro Ile
 1 5 10 15

Ser Gln Leu Arg Gln Gln His Gly Ala Gly Ala Met Arg Arg Arg Pro
 20 25 30

Sequence Listing

```

Trp Val Ala Arg Arg Arg Arg Tyr Val Val Pro Thr Ala Arg Leu Phe
    35                40                45

Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly
    50                55                60

Val Asp Asp Glu Ala Gly Ser Lys Gln His Gly Pro Leu Pro Arg Thr
    65                70                75                80

Tyr Thr Leu Thr His Ser Asp Val Thr Ala Arg Leu Thr Leu Ala Val
    85                90                95

Ser His Thr Ile Asn Arg Ala Gln Leu Gln Gly Trp Tyr Asn Arg Leu
    100               105               110

Gln Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Arg Gly Arg Met
    115               120               125

Ser Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp
    130               135               140

Leu Ile Ala Gly Leu Arg Tyr Val Ile Phe Arg Lys Glu Leu Pro Val
    145               150               155               160

Val Leu Lys Ala Phe Val His Gly Asp Gly Asp Leu Phe Ser Arg His
    165               170               175

Pro Glu Leu Glu Glu Ala Thr Val Trp Val Tyr Phe His Ser Asn Leu
    180               185               190

Ala Arg Phe Asn Arg Val Glu Cys Trp Gly Pro Leu Arg Asp Ala Ala
    195               200               205

Ala Pro Ala Glu Asp Asp Ser Thr Ala Pro Pro Asp Ala Ser Asn Ser
    210               215               220

Lys Glu Ala Gly Gln Met Met Ala Met Cys Glu Trp Pro His Arg Cys
    225               230               235               240

Pro Gln Gln Cys Gly Cys Cys Phe Pro Pro His Ser Leu Ile Pro Trp

```

Sequence Listing

```

                245                250                255
Pro Asn Glu His Asp Met Ala Ala Ala Asp Ala Ser Gly Ser Ala Gln
                260                265                270

Gln Gln

<210>      36
<211>      266
<212>      PRT
<213>      Sorghum bicolor

<400>      36
Met Ala Ala Ala Thr Ala Ala Ala Ala Ser Thr Met Ser Leu Pro Pro
  1                5                10                15

Ile Ser Gln Leu Arg Gln Gln Gln His Gly Ala Gly Ala Val Val Val
                20                25                30

Phe Arg Arg Arg Ala Arg Asp Ala Arg Arg Arg Arg Tyr Val Val Pro
                35                40                45

Thr Ala Arg Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys
                50                55                60

Val Leu Phe Leu Gly Val Asp Glu Glu Ser Asn Asn Lys His Gly His
                65                70                75                80

Pro Thr Thr Pro Ser Pro Thr Ser Pro Pro Leu Pro Leu Leu Pro Arg
                85                90                95

Thr Tyr Thr Leu Thr His Ser Asp Val Thr Ala Ser Leu Thr Leu Ala
                100                105                110

Val Ser His Thr Ile Asn Arg Ala Gln Leu Gln Gly Trp Tyr Asn Arg
                115                120                125

Leu Gln Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Arg Gly Arg

```

Sequence Listing

130	135	140
Met Ser Leu His Val Leu Lys Ala Phe Val His Gly Asp Gly Asp Leu		
145	150	155 160
Phe Ser Arg His Pro Glu Leu Glu Asp Ala Pro Val Trp Val Tyr Phe		
165	170	175
His Ser Asn Leu Thr Arg Phe Asn Arg Val Glu Cys Trp Gly Pro Leu		
180	185	190
Arg Asp Ala Ala Ala Pro Pro Ala Glu Asp Asp Ser Thr Ala Pro Ala		
195	200	205
Ala Ala Ser Asn Lys Asp Gly Gln Met Pro Pro Val Gly Glu Trp Pro		
210	215	220
Tyr Arg Cys Pro Gln Gln Cys Asp Cys Cys Phe Pro Pro His Ser Leu		
225	230	235 240
Ile Pro Trp Pro Asn Glu Arg Asp Met Ala Ala Ala Ala Ala Asp Ala		
245	250	255
Ser Ser Ala Ala Gly Gln Ala Gln Gln Gln		
260	265	
<210>	37	
<211>	261	
<212>	PRT	
<213>	Glycine max	
<400>	37	
Met Cys Thr Leu Thr Thr Val Pro Val Leu Pro Ser Lys Leu Asn Lys		
1	5	10 15
Pro Ser Leu Ser Pro His His Asn Ser Leu Phe Pro Tyr Cys Gly Arg		
20	25	30
Arg Val Gly Lys Lys Asn Lys Ala Met Val Pro Val Ala Arg Leu Phe		

Sequence Listing

35	40	45
Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly		
50	55	60
Val Asp Glu Asn Lys His Pro Gly Asn Leu Pro Arg Thr Tyr Thr Leu		
65	70	75
80		
Thr His Ser Asp Ile Thr Ala Lys Leu Thr Leu Ala Ile Ser Gln Thr		
85	90	95
Ile Asn Asn Ser Gln Leu Gln Gly Trp Tyr Asn Arg Phe Gln Arg Asp		
100	105	110
Glu Val Val Ala Gln Trp Lys Lys Val Lys Gly Arg Met Ser Leu His		
115	120	125
Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Ile Leu Ala		
130	135	140
Arg Leu Arg Tyr Phe Ile Phe Cys Lys Glu Leu Pro Val Val Leu Lys		
145	150	155
160		
Ala Val Val His Gly Asp Glu Asn Leu Phe Asn Ser Tyr Pro Glu Leu		
165	170	175
Gln Asp Ala Leu Val Trp Val Tyr Phe His Ser Asn Ile Pro Glu Phe		
180	185	190
Asn Lys Val Glu Cys Trp Gly Pro Leu Lys Glu Ala Ser Ala Pro Thr		
195	200	205
Gly Gly Val Gln Glu Glu Gly Leu Ala Ile Pro Gln Pro Cys Gln Glu		
210	215	220
Glu Cys Gln Cys Cys Phe Pro Pro Leu Thr Leu Ser Pro Ile Gln Trp		
225	230	235
240		
Ser Lys Gln Val Pro Ser Arg His Tyr Glu Pro Cys Asp Gly Ile Gly		
245	250	255

Sequence Listing

Thr Gln Gln Asn Leu

260

<210> 38

<211> 271

<212> PRT

<213> Glycine max

<400> 38

Met Gly Thr Leu Thr Thr Val Pro Val Leu Pro Ser Lys Leu Asn Lys

1 5 10 15

Pro Ser Leu Ser Pro Arg His Asn Ser Leu Phe Pro Tyr Tyr Gly Arg

20 25 30

Arg Val Gly Lys Lys Asn Lys Ala Met Val Pro Val Ala Arg Leu Phe

35 40 45

Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly

50 55 60

Val Asp Glu Asn Lys His Pro Gly Asn Leu Pro Arg Thr Tyr Thr Leu

65 70 75 80

Thr His Ser Asp Ile Thr Ala Lys Leu Thr Leu Ala Ile Ser Gln Thr

85 90 95

Ile Asn Asn Ser Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp

100 105 110

Glu Val Val Ala Gln Trp Lys Lys Val Lys Gly Lys Met Ser Leu His

115 120 125

Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Ile Leu Ala

130 135 140

Arg Leu Arg Tyr Phe Ile Phe Cys Arg Glu Leu Pro Val Val Leu Lys

145 150 155 160

Sequence Listing

Ala Val Val His Gly Asp Glu Asn Leu Phe Asn Asn Tyr Pro Glu Leu
 165 170 175

Gln Asp Ala Leu Val Trp Val Tyr Phe His Ser Asn Ile Pro Glu Phe
 180 185 190

Asn Lys Val Glu Cys Trp Gly Pro Leu Lys Glu Ala Ser Ala Pro Ile
 195 200 205

Gly Gly Ala Lys Glu Glu Ser Glu Gln Glu Thr Leu Leu Ser Lys Glu
 210 215 220

Gly Leu Ala Ile Pro Gln Pro Cys Gln Glu Glu Cys Glu Cys Cys Phe
 225 230 235 240

Pro Pro Leu Thr Leu Ser Pro Ile Gln Trp Ser Gln Gln Val Pro Ser
 245 250 255

His His Tyr Glu Pro Cys Asp Gly Ile Glu Thr Gln Gln Ser Leu
 260 265 270

<210> 39
 <211> 274
 <212> PRT
 <213> Vitis vinifera

<400> 39
 Met Ala Thr Leu Thr Ala Ala Leu Val Leu Pro Ser Glu Leu Lys Pro
 1 5 10 15

Ser Phe Ser Gln His Gln Ser Ser Leu Phe Val Cys Arg Arg Arg Pro
 20 25 30

Lys Lys Ser Asn Pro Ala Phe Pro Ala Ala Arg Leu Phe Gly Pro Ala
 35 40 45

Sequence Listing

```

Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly Val Asp Glu
  50                      55                      60

Lys Lys His Pro Gly Lys Leu Pro Arg Thr Tyr Thr Leu Thr His Ser
  65                      70                      75                      80

Asp Ile Thr Ser Lys Leu Thr Leu Ala Ile Ser Gln Thr Ile Asn Asn
      85                      90                      95

Ser Gln Leu Gln Gly Trp Ser Asn Arg Leu Gln Arg Asp Glu Val Val
      100                      105                      110

Ala Gln Trp Lys Lys Val Lys Asp Gln Met Ser Leu His Val His Cys
      115                      120                      125

His Ile Ser Gly Gly His Phe Leu Leu Asp Leu Cys Ala Lys Leu Arg
      130                      135                      140

Tyr Phe Ile Phe Cys Lys Glu Leu Pro Val Val Leu Lys Ala Phe Val
      145                      150                      155                      160

His Gly Asp Gly Asn Leu Leu Asn Asn Tyr Pro Glu Leu Gln Glu Ala
      165                      170                      175

Leu Val Trp Val Tyr Phe His Ser Asn Leu Pro Glu Phe Asn Arg Val
      180                      185                      190

Glu Cys Trp Gly Ala Leu Asn Asn Ala Ala Ala Pro Pro Pro Pro Ala
      195                      200                      205

Ala Gly Gly Gly Gly Gly Arg Val Glu Ala His Gln Asp Met Arg Gln
      210                      215                      220

Val Glu Pro Ser Ser Lys Trp Glu Arg Pro Glu Glu Pro Cys Met Glu
      225                      230                      235                      240

Asn Cys Thr Cys Cys Phe Pro Pro Met Ser Leu Ile Pro Trp Ser Gln
      245                      250                      255

Asp Leu Ala His Glu Asn Ile His Asp Thr Gln Lys Gly Leu Gln Gln

```

Sequence Listing

260

265

270

Gln Thr

<210> 40
 <211> 280
 <212> PRT
 <213> Lactuca sativa

<400> 40
 Met Ala Ser Leu Ile Leu Pro Thr Lys Gln Asn Pro Pro Ser Ser Ser
 1 5 10 15
 Phe Leu His Gln Asn His Gln Asn Asn Pro Phe Phe Thr Asn Lys Arg
 20 25 30
 Arg Lys Leu Lys Arg Asn Gln Ala Leu Val Pro Val Ala Arg Leu Phe
 35 40 45
 Gly Pro Ser Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly
 50 55 60
 Val Asp Glu Lys Lys His Pro Gly Lys Leu Pro Arg Thr Tyr Thr Leu
 65 70 75 80
 Thr His Ser Asp Ile Thr Ser Lys Leu Thr Leu Ala Ile Ser Gln Thr
 85 90 95
 Ile Asn Asn Ser Gln Leu Gln Gly Trp Tyr Asn Gln Leu Tyr Arg Asp
 100 105 110
 Glu Val Val Ala Glu Trp Arg Lys Val Lys Gly Asn Met Ser Leu His
 115 120 125
 Val His Cys His Ile Ser Arg Gly His Phe Leu Leu Asp Leu Cys Ala
 130 135 140
 Arg Leu Arg Phe Phe Ile Phe Thr Lys Glu Leu Pro Leu Val Leu Lys

Sequence Listing

```

145              150              155              160
Ala Phe Ala His Gly Asp Gly Asn Leu Leu Asn Ser Tyr Pro Glu Leu
              165              170              175
Gln Glu Ala Ser Val Trp Val Tyr Phe His Ser Asn Ile Gln Glu Phe
              180              185              190
Asn Arg Val Glu Cys Trp Gly Pro Leu Arg Glu Ala Val Gly Pro Leu
              195              200              205
Ser Thr Thr Thr Ser Ser Ser Ser Ser Ser Ser Leu Ser Glu Ser Thr
              210              215              220
Ile Ala Glu Ala Gly Glu Gly Ser Asn Asn Trp Glu Ile Pro Lys Pro
225              230              235              240
Cys Leu Glu Ala Cys Ala Cys Cys Phe Pro Pro Met Ser Ser Ile Pro
              245              250              255
Trp Ser His Asp Leu Val Lys Asn Gln Asp Asp Asp Asp Gly Ala Thr
              260              265              270
His Gln Gly Leu Gln Gln Lys Ala
              275              280

<210>      41
<211>      290
<212>      PRT
<213>      Pinus taeda

<400>      41
Met Ala Val Ala Arg Ile Ser Ala Gly Lys Thr Gln His Cys Tyr Ser
  1              5              10              15
Phe Ser Pro Ser Asp Val Arg Ile Ser Ser Ala Pro Gln Asn Ser Gln
              20              25              30
Ser Gln Phe Lys Arg Lys Ser Lys Ile Lys Leu Ser Ser Arg Phe Leu

```

Sequence Listing

35	40	45
Ala Ser Glu Ser Ser Trp Asn Gly Leu Val Ala His Gln Leu Gln Cys		
50	55	60
Asn Asn Arg His Arg Thr Asn Ser Ser Phe Pro Arg Ser Thr Ser Arg		
65	70	75 80
Val Val Ala Arg Leu Phe Gly Pro Ala Ile Phe Gln Ala Ser Lys Leu		
85	90	95
Lys Val Leu Phe Leu Gly Thr His Glu Glu Lys His Pro Ala His Leu		
100	105	110
Pro Arg Thr Tyr Thr Leu Thr His Ser Asp Ile Thr Ala Lys Leu Thr		
115	120	125
Leu Ala Phe Ser Gln Thr Ile Asn Lys Asp Gln Gly Trp Tyr Asn Arg		
130	135	140
Leu Gln Arg Asp Glu Val Leu Ala Gln Trp Lys Lys Ser Gln Gly Lys		
145	150	155 160
Met Ser Leu His Val His Cys His Ile Ser Gly Gly His Trp Leu Leu		
165	170	175
Asp Ala Ile Ala Arg Leu Arg Phe Tyr Ile Phe Arg Lys Glu Leu Pro		
180	185	190
Val Val Leu Glu Ala Phe Arg His Gly Asp Arg Ala Leu Leu Glu Lys		
195	200	205
His Pro Glu Leu Glu Thr Ala Leu Val Trp Val Tyr Phe His Ser Asn		
210	215	220
Val Lys Glu Phe Lys Arg Val Glu Cys Trp Gly Ser Leu Ala Glu Ala		
225	230	235 240
Cys Lys Gly Ala Pro Ser Asn Leu Asn Lys Glu Leu Asp Glu Leu Asp		
245	250	255

Sequence Listing

Gly Gly Lys Leu Glu Met Pro Ser His Cys Ala Glu Pro Cys Ser Cys
 260 265 270

Cys Phe Pro Pro Phe Ser Val Leu Leu Arg Pro Glu Asp Val Glu Gln
 275 280 285

Phe Ser
 290

<210> 42
 <211> 271
 <212> PRT
 <213> Citrus sinensis

<400> 42
 Met Ala Ser Leu Val Ala Ala Leu Gly Leu Pro Ser Lys Leu Lys Ala
 1 5 10 15

Ser Pro Tyr Glu Gln Gln Asn Ala Leu Phe Val Ser Arg Arg Arg Ser
 20 25 30

Lys Lys Lys Asn Gln Ser Phe Ala Pro Val Ala Arg Leu Phe Gly Pro
 35 40 45

Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly Val Asp
 50 55 60

Glu Glu Lys His Pro Gly Lys Leu Pro Arg Thr Tyr Thr Leu Thr His
 65 70 75 80

Ser Asp Ile Thr Ser Lys Leu Thr Leu Ala Ile Ser Gln Thr Ile Asn
 85 90 95

Asn Ser Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp Glu Val
 100 105 110

Val Ala Glu Trp Lys Lys Val Lys Gly Lys Met Ser Leu His Val His
 115 120 125

Sequence Listing

Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Ile Cys Ala Arg Leu
 130 135 140
 Arg Phe Phe Ile Phe Ser Lys Glu Leu Pro Val Val Leu Lys Ala Phe
 145 150 155 160
 Val His Gly Asp Gly Asn Leu Leu Asn Asn His Pro Glu Leu Gln Glu
 165 170 175
 Ala Leu Val Trp Val Tyr Phe His Ser Asn Ile Pro Glu Phe Asn Lys
 180 185 190
 Val Glu Cys Trp Gly Pro Leu Lys Glu Ala Val Ala Gly Ser Ser Glu
 195 200 205
 Ala Gly Gly Thr Arg His Glu Ile Arg Gln Glu Thr Ser Ile Ser Asn
 210 215 220
 Trp Glu Leu Pro Glu Pro Cys Gln Glu Thr Cys Asn Cys Cys Phe Pro
 225 230 235 240
 Pro Met Ser Leu Ile Pro Trp Ser Glu Lys Leu Pro Leu Gln Thr Glu
 245 250 255
 Asn Arg Gly Thr Gln Gly Gln Glu Ser Leu Gln Gln Gln Thr Arg
 260 265 270

<210> 43
 <211> 263
 <212> PRT
 <213> Medicago truncatula

<400> 43
 Met Gly Thr Leu Thr Thr Ala Pro Pro Pro Met Leu Thr Ser Lys Phe
 1 5 10 15

Sequence Listing

Lys Pro Ser Phe Ser Pro Gln His Lys Pro Leu Phe Pro Asn Arg Arg
 20 25 30
 Arg Leu Trp Lys Lys Asn Gln Ser Ile Val Pro Val Ala Arg Leu Phe
 35 40 45
 Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly
 50 55 60
 Ile Asp Glu Asp Lys His Pro Gly Asn Leu Pro Arg Thr Tyr Thr Leu
 65 70 75 80
 Thr His Ser Asp Val Thr Ser Lys Leu Thr Leu Ala Ile Ser Gln Thr
 85 90 95
 Ile Asn Asn Ser Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp
 100 105 110
 Glu Val Val Ala Gln Trp Lys Lys Val Lys Gly Lys Met Ser Leu His
 115 120 125
 Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Ile Phe Ala
 130 135 140
 Arg Leu Arg Tyr Phe Ile Phe Cys Lys Glu Leu Pro Val Val Leu Lys
 145 150 155 160
 Ala Phe Val His Gly Asp Gly Asn Leu Phe Asn Asn Tyr Pro Glu Leu
 165 170 175
 Gln Glu Ala Leu Val Trp Val Tyr Phe His Ser Lys Ile Pro Glu Phe
 180 185 190
 Asn Lys Val Glu Cys Trp Gly Pro Leu Lys Glu Ala Ser Gln Pro Thr
 195 200 205
 Ser Gly Thr Gln Arg Asp His Gln Asn Leu Thr Leu Pro Glu Pro Cys
 210 215 220
 Gln Glu Thr Cys Glu Cys Cys Phe Pro Pro Leu Lys Leu Ser Pro Met

Sequence Listing

```

225                230                235                240

Pro Cys Ser Asn Glu Val His Asn Asp Thr Tyr Glu Pro Ile Asp Gly
      245                250                255

Ile Glu Thr Gln Gln Ser Leu
      260

<210>      44
<211>      272
<212>      PRT
<213>      Solanum tuberosum

<400>      44
Met Gly Thr Leu Thr Ala Ser Leu Val Val Pro Ser Lys Leu Asn Asn
  1                5                10                15

Glu Lys Gln Ser Ser Ile Phe Val His Lys Thr Arg Arg Lys Ser Lys
      20                25                30

Lys Asn Gln Ser Ile Val Pro Val Ala Arg Leu Phe Gly Pro Ala Ile
      35                40                45

Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly Val Asp Glu Glu
      50                55                60

Lys His Pro Gly Lys Leu Pro Arg Thr Tyr Thr Leu Thr His Ser Asp
      65                70                75                80

Ile Thr Ser Lys Leu Thr Leu Ala Ile Ser Gln Thr Ile Asn Asn Ser
      85                90                95

Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp Glu Val Val Ala
      100                105                110

Glu Trp Lys Lys Val Lys Gly Lys Met Ser Leu His Val His Cys His
      115                120                125

Ile Ser Gly Gly His Phe Met Leu Asp Leu Phe Ala Arg Leu Arg Asn

```

Sequence Listing

```

130          135          140
Tyr Ile Phe Cys Lys Glu Leu Pro Val Val Leu Lys Ala Phe Val His
145          150          155          160
Gly Asp Glu Asn Leu Leu Lys Asn Asn Pro Glu Leu Gln Glu Ala Leu
          165          170          175
Val Trp Val Tyr Phe His Ser Asn Ile Gln Glu Phe Asn Lys Val Glu
          180          185          190
Cys Trp Gly Pro Leu Lys Asp Ala Thr Ser Pro Ser Ser Ser Ser Ser
          195          200          205
Gly Val Gly Gly Val Lys Ser Thr Ser Phe Thr Ser Asn Ser Asn Asn
          210          215          220
Lys Trp Glu Leu Pro Lys Pro Cys Glu Glu Ala Cys Ala Cys Cys Phe
225          230          235          240
Pro Pro Met Ser Val Met Pro Trp Pro Ser Ser Asn Leu Asp Gly Ile
          245          250          255
Gly Glu Glu Asn Gly Thr Ile Gln Gln Gly Leu Gln Glu Gln Gln Ser
          260          265          270

<210>      45
<211>      269
<212>      PRT
<213>      Populus tremula

<400>      45
Met Gly Ser Leu Ala Ile Ala Pro Phe Leu Pro Ser Lys Leu Arg Pro
  1              5              10              15
Ser Ile Leu Asp Gln Asn Ser Ser Leu Phe Pro Ser Lys Lys Lys Leu
          20              25              30

```

Sequence Listing

```

Lys Arg Lys Asn Gln Ser Ile Ser Pro Val Ala Arg Leu Phe Gly Pro
    35                      40                      45

Ser Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly Val Asp
    50                      55                      60

Glu Lys Lys His Pro Gly Asn Leu Pro Arg Thr Tyr Thr Leu Thr His
    65                      70                      75                      80

Ser Asp Ile Thr Ala Lys Leu Thr Leu Ala Ile Ser Gln Thr Ile Asn
                      85                      90                      95

Asn Ser Gln Leu Gln Gly Trp Ser Asn Lys Leu Tyr Arg Asp Glu Val
    100                      105                      110

Val Ala Glu Trp Lys Lys Val Lys Gly Lys Met Ser Leu His Val His
    115                      120                      125

Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Leu Cys Cys Arg Leu
    130                      135                      140

Arg Tyr Phe Ile Phe Arg Lys Glu Leu Pro Val Val Leu Lys Ala Phe
    145                      150                      155                      160

Phe His Gly Asp Gly Asn Leu Phe Ser Ser Tyr Pro Glu Leu Gln Glu
                      165                      170                      175

Ala Leu Val Trp Val Tyr Phe His Ser Asn Ile Pro Glu Phe Asn Lys
                      180                      185                      190

Val Glu Cys Trp Gly Pro Leu Lys His Ala Ala Ala Pro Tyr Thr Ala
    195                      200                      205

Ala Ser Gly Gly Ala Pro Glu Asn Lys Glu Gln Ala Thr Asp Trp Asn
    210                      215                      220

Leu Pro Glu Pro Cys Gln Glu Asn Cys Gln Cys Cys Phe Pro Pro Met
    225                      230                      235                      240

```

Sequence Listing

Ser Leu Ile Pro Trp Ser Glu Met Val Pro Gln Glu Asn Lys Asn Asn
 245 250 255

Pro Ser Thr Gln Gln Thr Phe Gln Gln Ala Gln Gln Pro
 260 265

<210> 46
 <211> 270
 <212> PRT
 <213> Populus tremula

<400> 46
 Met Gly Ser Leu Ala Val Ala Pro Phe Leu Pro Ser Lys Pro Arg Pro
 1 5 10 15

Ser Leu Phe Asp Gln His Ser Ser Leu Phe Ser Pro Ser Thr Lys Leu
 20 25 30

Lys Arg Lys Asn Gln Ser Ile Ser Pro Val Ala Arg Leu Phe Gly Pro
 35 40 45

Ser Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly Val Asp
 50 55 60

Glu Lys Glu His Pro Gly Asn Leu Pro Arg Thr Tyr Thr Leu Thr His
 65 70 75 80

Ser Asp Met Thr Ala Lys Leu Thr Leu Ala Ile Ser Gln Thr Ile Asn
 85 90 95

Asn Ser Gln Leu Gln Gly Trp Ser Asn Lys Leu Tyr Arg Asp Glu Val
 100 105 110

Val Ala Glu Trp Lys Lys Val Lys Gly Lys Met Ser Leu His Val His
 115 120 125

Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Trp Cys Cys Arg Leu
 130 135 140

Sequence Listing

Arg Tyr Phe Ile Phe Arg Arg Glu Leu Pro Val Val Leu Lys Ala Phe
 145 150 155 160

Phe His Gly Asp Gly Ser Leu Leu Ser Asn Tyr Pro Glu Leu Gln Glu
 165 170 175

Gly Leu Val Trp Val Tyr Phe His Ser Asn Ile Pro Glu Phe Ser Lys
 180 185 190

Val Glu Cys Trp Gly Pro Leu Lys Asp Ala Ala Ala Pro Ser Thr Ser
 195 200 205

Glu Thr Gly Gly Ser Asn Glu Thr Glu Glu Leu Ala Asn Gln Ser Ser
 210 215 220

Asn Trp Asp Leu Pro Glu Pro Cys Gln Glu Glu Asn Cys Ser Cys Cys
 225 230 235 240

Phe Pro Pro Met Ser Leu Ile Pro Trp Ser Lys Met Val Pro Leu Glu
 245 250 255

Asp Lys Asn Asn Pro Ser Thr Pro Gln Asn Leu Gln Gln Pro
 260 265 270

<210> 47
 <211> 286
 <212> PRT
 <213> Mesembryanthemum crystallinum

<400> 47
 Met Gly Thr Leu Thr Ala Ser Met Leu Leu Pro Ser Lys Leu Lys Pro
 1 5 10 15

Ser Val Phe Glu Asp Gln Ser Ser Val Tyr Phe Lys Arg Ser Cys Arg
 20 25 30

Gly Leu Pro Lys Leu Asn Lys Ala Lys Ser Phe Ser Pro Val Met Arg
 35 40 45

Sequence Listing

```

Leu Phe Gly Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Leu Phe
  50                      55                      60

Leu Gly Val Asp Lys Glu Lys His Pro Gly Lys Leu Pro Arg Thr Tyr
  65                      70                      75                      80

Thr Leu Thr His Ser Asp Ile Thr Ser Lys Leu Thr Leu Ala Ile Ser
                      85                      90                      95

Gln Thr Ile Asn Asn Ser Gln Leu Gln Gly Trp Tyr Asn Gln Leu Gln
    100                      105                      110

Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Lys Gly Lys Met Ser
    115                      120                      125

Leu His Val His Cys His Ile Ser Gly Gly His Ile Leu Leu Asp Leu
    130                      135                      140

Phe Ala Lys Leu Arg Phe Tyr Ile Phe Cys Lys Glu Leu Pro Val Val
    145                      150                      155                      160

Leu Lys Ala Phe Val His Gly Asp Glu Asn Leu Phe Asn Asn Tyr Pro
                      165                      170                      175

Glu Leu Gln Glu Ala Met Val Trp Val Tyr Phe His Ser Asn Leu Glu
    180                      185                      190

Glu Phe Asn Lys Ile Glu Cys Trp Gly Pro Leu Lys Asp Ala Val Ala
    195                      200                      205

Arg Asn Ser Lys Lys Asn Lys Asn Lys Asn Lys Ile Asp Phe Lys Leu
    210                      215                      220

Ser Phe Lys Glu Glu Asp Asp Ser Pro Asp Asn Glu Leu Glu Ile Pro
    225                      230                      235                      240

Glu Thr Cys Lys Glu Pro Cys Thr Cys Cys Phe Pro Pro Thr Ser Val
                      245                      250                      255

Ile Pro Trp Ser His Ser Ala Leu Ser Gln Gly Asp Asp Leu His Leu

```

Sequence Listing

260	265	270
Ser Gly Gly Thr His Gln Gly Leu Glu Gln Gln Gln Thr		
275	280	285
<210>	48	
<211>	268	
<212>	PRT	
<213>	Arabidopsis thaliana	
<400>	48	
Met Cys Ser Leu Ser Ala Ile Met Leu Leu Pro Thr Lys Leu Lys Pro		
1	5	10 15
Ala Tyr Ser Asp Lys Arg Ser Asn Ser Ser Ser Ser Ser Ser Leu Phe		
20	25	30
Phe Asn Asn Arg Arg Ser Lys Lys Lys Asn Gln Ser Ile Val Pro Val		
35	40	45
Ala Arg Leu Phe Gly Pro Ala Ile Phe Glu Ser Ser Lys Leu Lys Val		
50	55	60
Leu Phe Leu Gly Val Asp Glu Lys Lys His Pro Ser Thr Leu Pro Arg		
65	70	75 80
Thr Tyr Thr Leu Thr His Ser Asp Ile Thr Ala Lys Leu Thr Leu Ala		
85	90	95
Ile Ser Gln Ser Ile Asn Asn Ser Gln Leu Gln Gly Trp Ala Asn Arg		
100	105	110
Leu Tyr Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Lys Gly Lys		
115	120	125
Met Ser Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Leu		
130	135	140

Sequence Listing

```

Asp Leu Phe Ala Lys Phe Arg Tyr Phe Ile Phe Cys Lys Glu Leu Pro
145                      150                      155                      160

Val Val Leu Lys Ala Phe Val His Gly Asp Gly Asn Leu Leu Asn Asn
                      165                      170                      175

Tyr Pro Glu Leu Gln Glu Ala Leu Val Trp Val Tyr Phe His Ser Asn
                      180                      185                      190

Val Asn Glu Phe Asn Lys Val Glu Cys Trp Gly Pro Leu Trp Glu Ala
                      195                      200                      205

Val Ser Pro Asp Gly His Lys Thr Glu Thr Leu Pro Glu Ala Arg Cys
                      210                      215                      220

Ala Asp Glu Cys Ser Cys Cys Phe Pro Thr Val Ser Ser Ile Pro Trp
225                      230                      235                      240

Ser His Ser Leu Ser Asn Glu Gly Val Asn Gly Tyr Ser Gly Thr Gln
                      245                      250                      255

Thr Glu Gly Ile Ala Thr Pro Asn Pro Glu Lys Leu
                      260                      265

-

<210>      49
<211>      271
<212>      PRT
<213>      Arabidopsis thaliana

<400>      49
Met Cys Ser Leu Ala Thr Asn Leu Leu Leu Pro Ser Lys Met Lys Pro
  1              5              10              15

Val Phe Pro Glu Lys Leu Ser Thr Ser Ser Leu Cys Val Thr Thr Arg
                      20                      25                      30

Arg Ser Lys Met Lys Asn Arg Ser Ile Val Pro Val Ala Arg Leu Phe
                      35                      40                      45

```

Sequence Listing

Gly	Pro	Ala	Ile	Phe	Glu	Ala	Ser	Lys	Leu	Lys	Val	Leu	Phe	Leu	Gly
	50					55					60				
Val	Asp	Glu	Lys	Lys	His	Pro	Ala	Lys	Leu	Pro	Arg	Thr	Tyr	Thr	Leu
65					70					75					80
Thr	His	Ser	Asp	Ile	Thr	Ala	Lys	Leu	Thr	Leu	Ala	Ile	Ser	Gln	Ser
				85					90					95	
Ile	Asn	Asn	Ser	Gln	Leu	Gln	Gly	Trp	Ala	Asn	Lys	Leu	Phe	Arg	Asp
				100				105					110		
Glu	Val	Val	Gly	Glu	Trp	Lys	Lys	Val	Lys	Gly	Lys	Met	Ser	Leu	His
			115					120				125			
Val	His	Cys	His	Ile	Ser	Gly	Gly	His	Phe	Phe	Leu	Asn	Leu	Ile	Ala
	130							135				140			
Lys	Leu	Arg	Tyr	Tyr	Ile	Phe	Cys	Lys	Glu	Leu	Pro	Val	Val	Leu	Glu
145					150					155					160
Ala	Phe	Ala	His	Gly	Asp	Glu	Tyr	Leu	Leu	Asn	Asn	His	Pro	Glu	Leu
				165					170					175	
Gln	Glu	Ser	Pro	Val	Trp	Val	Tyr	Phe	His	Ser	Asn	Ile	Pro	Glu	Tyr
			180					185					190		
Asn	Lys	Val	Glu	Cys	Trp	Gly	Pro	Leu	Trp	Glu	Ala	Met	Ser	Gln	His
			195					200				205			
Gln	His	Asp	Gly	Arg	Thr	His	Lys	Lys	Ser	Glu	Thr	Leu	Pro	Glu	Leu
	210						215					220			
Pro	Cys	Pro	Asp	Glu	Cys	Lys	Cys	Cys	Phe	Pro	Thr	Val	Ser	Thr	Ile
225					230					235					240
Pro	Trp	Ser	His	Arg	His	Tyr	Gln	His	Thr	Ala	Ala	Asp	Glu	Asn	Val
				245					250					255	

Sequence Listing

Ala Asp Gly Leu Leu Glu Ile Pro Asn Pro Gly Lys Ser Lys Gly
 260 265 270

<210> 50
 <211> 221
 <212> PRT
 <213> Lycopersicon esculentum

<400> 50
 Met Gly Thr Leu Thr Thr Ser Leu Val Val Pro Ser Lys Leu Asn Asn
 1 5 10 15

Glu Gln Gln Ser Ser Ile Phe Ile His Lys Thr Arg Arg Lys Cys Lys
 20 25 30

Lys Asn Gln Ser Ile Val Pro Val Ala Arg Leu Phe Gly Pro Ala Ile
 35 40 45

Phe Glu Ala Ser Lys Leu Lys Val Leu Phe Leu Gly Val Asp Glu Glu
 50 55 60

Lys His Pro Gly Lys Leu Pro Arg Thr Tyr Thr Leu Thr His Ser Asp
 65 70 75 80

Ile Thr Ser Lys Leu Thr Leu Ala Ile Ser Gln Thr Ile Asn Asn Ser
 85 90 95

Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp Glu Val Val Ala
 100 105 110

Glu Trp Lys Lys Val Lys Gly Lys Met Ser Leu His Val His Cys His
 115 120 125

Ile Ser Gly Gly His Phe Met Leu Asp Leu Phe Ala Arg Leu Arg Asn
 130 135 140

Tyr Ile Phe Cys Lys Glu Leu Pro Val Val Leu Lys Ala Phe Val His

Sequence Listing

```

145              150              155              160
Gly Asp Glu Asn Leu Leu Arg Asn Tyr Pro Glu Leu Gln Glu Ala Leu
              165              170              175
Val Trp Val Tyr Phe His Ser Asn Ile Gln Glu Phe Asn Lys Val Glu
              180              185              190
Cys Trp Gly Pro Leu Arg Asp Ala Thr Ser Pro Ser Ser Ser Ser Gly
              195              200              205
Gly Val Gly Gly Val Lys Ser Thr Ser Phe Thr Ser His
              210              215              220

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<210>      51
<211>      110
<212>      PRT
<213>      Beta vulgaris

```

```

<400>      51
Pro Glu Leu Gln Glu Ala Ser Val Trp Val Tyr Phe His Ser Ser Ile
  1              5              10              15
Pro Glu Phe Asn Lys Val Glu Cys Trp Gly Pro Leu Thr Asp Ala Val
              20              25              30
Asp Pro Pro Ser Lys Asn Lys Lys Arg Met Met Met Ile Asn Asp Glu
              35              40              45
Gln Asp Lys Glu Glu Glu Glu Glu Ala Ser Ser Ser Lys Trp Glu Met
              50              55              60
Leu Val Pro Cys Thr Lys Pro Cys Arg Cys Cys Phe Pro Pro Thr Ser
              65              70              75              80
Leu Ile Pro Trp Thr Pro Ser Leu Ser Gln Glu Gln Gln Gln Glu Gln
              85              90              95

```

Sequence Listing

Gln Leu Pro Gly Asp Val Ser Ile Pro Pro Pro Gly Thr Arg

100

105

110

<210> 52

<211> 187

<212> PRT

<213> Zoysia japonica

<400> 52

Thr Tyr Thr Leu Thr His Ser Asp Val Thr Ala Lys Leu Thr Leu Ala

1

5

10

15

Val Ser His Thr Ile His Ala Ala Gln Leu Gln Gly Trp Tyr Asn Arg

20

25

30

Leu Gln Arg Asp Glu Val Val Ala Glu Trp Arg Lys Val Arg Gly Asn

35

40

45

Met Ser Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Arg

50

55

60

Asp Leu Ile Ala Pro Leu Arg Tyr Tyr Ile Phe Arg Lys Glu Leu Pro

65

70

75

80

Val Val Leu Lys Ala Phe Val His Gly Asp Gly Ser Leu Phe Ser Ser

85

90

95

His Pro Glu Leu Glu Glu Ala Thr Val Trp Val Tyr Phe His Ser Asn

100

105

110

Leu Pro Arg Phe Asn Arg Val Glu Cys Trp Gly Pro Leu Cys Asp Ala

115

120

125

Ala Ala Pro Val Glu Glu Glu Gly Gln Gln Asn Asp Asp Arg Leu Pro

130

135

140

Ala Gly Glu Trp Pro Arg Arg Cys Pro Gln Gln Cys Glu Cys Cys Phe

145

150

155

160

Sequence Listing

Pro Pro His Ser Leu Ile Pro Trp Pro Asn Glu His Asp Met Ala Pro
 165 170 175

Thr Asp Ala Pro Ala Ala Gly Gln Thr Gln Gln
 180 185

<210> 53
 <211> 93
 <212> PRT
 <213> Lotus corniculatus var. japonicus

<400> 53
 Tyr Pro Glu Leu Gln Asp Ala Leu Val Trp Val Tyr Phe His Ser Lys
 1 5 10 15

Ile Pro Glu Phe Asn Lys Val Gln Cys Trp Gly Pro Leu Lys Glu Ala
 20 25 30

Ala Ala Pro Ser Gly Gly Ser Pro Glu Lys Glu Gly Glu Gly Val Lys
 35 40 45

Met Pro Asp Pro Cys Pro Glu Glu Cys Glu Cys Cys Phe Pro Pro Pro
 50 55 60

Pro Ala Leu Asp Pro Ile Pro Trp Ser Glu Glu Val Pro Ser Pro His
 65 70 75 80

Tyr Glu Ala Phe Asp Gly Val Gly Thr Arg Pro Asn Leu
 85 90

<210> 54
 <211> 107
 <212> PRT
 <213> Lotus corniculatus var. japonicus

<400> 54
 Asp Leu Cys Ala Lys Leu Arg Tyr Phe Ile Phe Cys Lys Glu Leu Pro

Sequence Listing

```

1             5             10             15
Val Val Leu Lys Ala Phe Ile His Gly Asp Glu Asn Leu Phe Asn Asn
      20             25             30
Tyr Pro Glu Leu Glu Glu Ser Leu Val Trp Val Tyr Phe His Ser Asn
      35             40             45
Ile Ser Glu Phe Asn Lys Val Glu Cys Trp Gly Pro Leu Lys Asp Ala
      50             55             60
Cys Ala Thr Ser Ile Gly Ser Tyr Ser Tyr Asp Lys Gly Met Pro Gln
      65             70             75             80
Thr Gln Pro Cys Gln Gln Asn Cys Glu Cys Cys Phe Thr Pro Met Ser
      85             90             95
Ser Ser Asp Trp Ile Gly Thr Gln Gln Lys Leu
      100             105

<210>      55
<211>     137
<212>      PRT
<213>     Saccharum officinarum

<400>      55
Thr Arg Leu Asp Leu Ile Ala Gly Leu Arg Tyr Tyr Ile Phe Arg Lys
  1             5             10             15
Glu Leu Pro Val Val Leu Lys Ala Phe Val His Gly Asp Gly Asp Leu
      20             25             30
Phe Ser Arg His Pro Glu Leu Glu Asp Ala Thr Val Trp Val Tyr Phe
      35             40             45
His Ser Asn Leu Thr Arg Phe Asn Arg Val Glu Cys Trp Gly Pro Leu
      50             55             60
Arg Asp Ala Ala Ala Pro Pro Ala Glu Glu Asp Ser Thr Ala Pro Ala

```

Sequence Listing

```

65              70              75              80
Ala Ser Asn Ser Lys Glu Gly Gln Met Pro Pro Val Gly Glu Trp Pro
      85              90              95
Tyr Arg Cys Pro Gln Gln Cys Asp Cys Cys Phe Pro Pro His Ser Leu
      100             105             110
Ile Pro Trp Pro Asn Glu His Asp Met Ala Ala Ala Ala Ala Asp Ala
      115             120             125
Thr Ala Ala Gly Gln Ala Gln Gln Gln
      130             135

<210>      56
<211>      159
<212>      PRT
<213>      Picea

<400>      56
Ile Asn Lys Asp Gln Leu Gln Gly Trp Tyr Asn Arg Leu Gln Arg Asp
  1              5              10              15
Glu Val Ile Ala Gln Trp Lys Lys Ser Gln Gly Lys Met Ser Leu His
      20              25              30
Val His Cys His Ile Ser Gly Gly His Trp Leu Leu Asp Ala Ile Ala
      35              40              45
Arg Leu Arg Phe Tyr Ile Phe Arg Lys Glu Leu Pro Val Val Leu Glu
      50              55              60
Ala Phe Arg His Gly Asp Arg Ala Leu Leu Asp Lys His Pro Glu Leu
      65              70              75              80
Glu Thr Ala Leu Val Trp Val Tyr Phe His Ser Asn Val Arg Glu Phe
      85              90              95
Lys Arg Val Glu Cys Trp Gly Ser Leu Ala Glu Ala Cys Lys Gly Ala

```

Sequence Listing

```

100          105          110
Pro Ser Asn Leu Glu Lys Glu Leu Asp Glu Glu Phe Asn Gly Glu Lys
115          120          125
Leu Glu Met Pro Ser His Cys Ser Glu Pro Cys Asn Cys Cys Phe Pro
130          135          140
Pro Phe Ser Val Leu Leu Arg Pro Glu Asp Ala Glu Gln Phe Ile
145          150          155

<210>      57
<211>      210
<212>      PRT
<213>      Brassica napus

<400>      57
Met Cys Ser Leu Ala Thr Asn Leu Leu Leu Pro Ser Thr Met Lys Pro
1          5          10          15
Ala Phe Thr Glu Lys Gln Asn Thr Asn Ser Leu Phe Leu Thr Asn Lys
20          25          30
Arg Ser Leu Met Gln Asn Arg Ser Thr Val Pro Val Pro Val Ala Arg
35          40          45
Leu Leu Glu Pro Ala Ile Phe Glu Ala Ser Lys Leu Lys Val Ser Phe
50          55          60
Leu Gly Val Asp Glu Lys Lys His Pro Ser Lys Leu Pro Arg Thr Tyr
65          70          75          80
Thr Leu Thr His Ser Asp Ile Thr Ala Lys Leu Thr Leu Ala Ile Ser
85          90          95
Gln Ser Ile Asn Asn Ser Gln Leu Gln Gly Trp Ala Asn Arg Leu Phe
100         105         110
Arg Asp Glu Val Val Ala Glu Trp Lys Lys Val Lys Gly Lys Met Ser

```

Sequence Listing

```

115              120              125
Leu His Val His Cys His Ile Ser Gly Gly His Phe Leu Leu Asp Leu
130              135              140
Ile Ala Lys Leu Arg Tyr Tyr Ile Phe Cys Lys Glu Leu Pro Val Val
145              150              155              160
Leu Lys Ala Phe Val His Gly Asp Gly Asn Leu Leu Asn Ser Tyr Pro
165              170              175
Glu Leu Gln Glu Ser Pro Val Trp Val Tyr Ser Ile Gln Thr Ser Pro
180              185              190
Ser Thr Ile Arg Leu Asn Val Gly Gly Arg Phe Gly Arg Pro Arg Ser
195              200              205
Thr Asn
210

<210>      58
<211>      97
<212>      PRT
<213>      Brassica napus

<400>      58
Met Cys Ser Leu Ser Ala Asn Met Leu Leu Pro Thr Lys Leu Lys Pro
1              5              10              15
Ala Tyr Ser Asp Lys Arg Gly Asn Ser Thr Asn Ser Leu Leu Val Ser
20              25              30
Asn Thr Arg Ser Lys Arg Lys Asn Gln Ser Val Val Pro Met Ala Arg
35              40              45
Leu Phe Gly Pro Ala Ile Phe Glu Ser Ser Lys Leu Lys Val Leu Phe
50              55              60
Leu Gly Val Asp Asp Lys Lys His Pro Pro Thr Leu Pro Arg Thr Tyr

```

Sequence Listing

65

70

75

80

Thr Leu Thr His Ser Asp Ile Thr Ala Lys Leu Thr Leu Ala Ile Ser

85

90

95

His